

CLAIMS

What is claimed is:

1. A system for creating and maintaining a microenvironment in a living body, the system comprising:

an implantable infusion device for delivering a medicament composition to a target site in the living body, the infusion device having a reservoir;

a medicament composition contained in the reservoir for providing a therapeutic benefit to the target site, the medicament composition being specifically tailored to provide a comprehensive microenvironment at a target site in the living body.

2. The system of claim 1 wherein the infusion device comprises an implantable infusion pump.

3. The system of claim 2, wherein the medicament composition includes living cells.

4. The system of claim 2, wherein the medicament composition includes one or more neurotropic factors.

5. The system of claim 2, wherein the medicament composition includes stem cells that may be later modified to produce an exogenous substance.

6. The system of claim 5, wherein the exogenous substance is selected from the group consisting of enzymes, co-factors, neurotransmitters and trophins.

7. The system of claim 1, wherein the reservoir is provided with means for maintaining the cells in a dormant state.

8. A method of treating a patient comprising the steps of:

implanting an infusion system in the patient, the infusion system including a reservoir for containing a first medicament composition;

operating the infusion system to deliver the first medicament composition to a target sight to thereby create a microenvironment in the target site in the patient's body; and

infusing a second medicament composition to foster the development of cells which produce exogenous substances at the target site.

9. The method of claim 8, wherein the step of operating the infusion system further comprises the step of delivering living cells to the target site.

10. The method of claim 9, wherein the step of operating the infusion system further comprises the step of utilizing native cell structures at the target site as a framework on which the living cells grow.

11. The method of claim 10, wherein the living cells produce exogenous substances once delivered to the target area.

12. The method of claim 8 wherein the first medicament composition is selected from the group consisting of stem cells, neurotrophic factors, proteins, nerve growth factors, genetically modified cells, enzymes, co-factors, neurotransmitters, trophins, and adhesive peptides.

13. A method of creating or maintaining a microenvironment in a living body comprising the steps of:

implanting an infusion device in the living body, the infusion device having a reservoir containing a medicament composition selected from the group consisting of stem cells, neurotrophic factors, proteins, nerve growth factors, genetically modified cells, enzymes, co-factors, neurotransmitters, trophins, and adhesive peptides;

delivering, via the infusion device, the medicament composition to a target area of the living body to create or maintain a microenvironment in the target area.

14. A method of creating or maintaining a microenvironment in a living body comprising the steps of:

implanting an infusion device in the living body, the infusion device having a reservoir containing a medicament composition selected from the group consisting of stem cells, neurotrophic factors, proteins, nerve growth factors, genetically modified cells, enzymes, co-factors, neurotransmitters, trophins, and adhesive peptides;

delivering, via the infusion device, the medicament composition to a target area of the living body to create or maintain a microenvironment in the target area, and

infusing an exogenous substance to foster the growth of cells at the target area.

15. A method of treating a patient whose nervous system has been traumatized, the method comprising the steps of:

implanting an infusion system in the patient's body;

operating the infusion system to create and maintain a microenvironment in a target site in the patient's body to foster the regeneration of the patient's nervous system.

16. The method of claim 15, wherein the step of operating the infusion system further comprises the step of delivering a medicament composition including living cells to the target site.

17. The method of claim 15, wherein the step of operating the infusion system further comprises the step of delivering the living cells to a gap in the nerve structure.